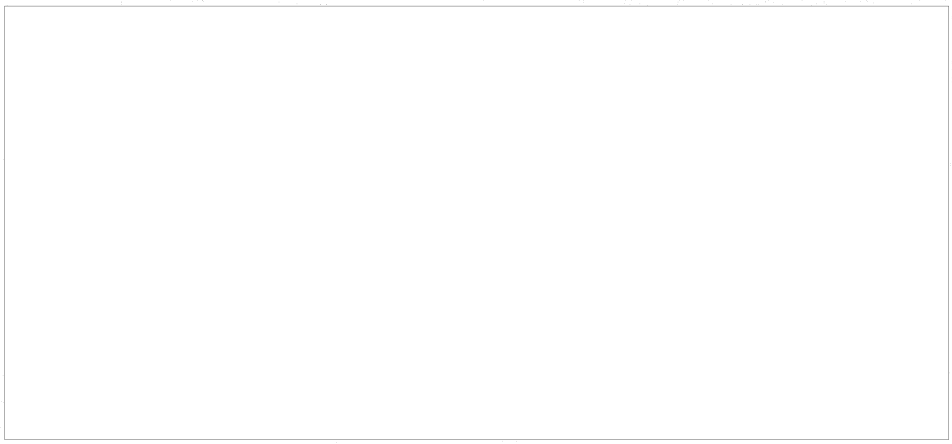

Title: ABSTRACTS FROM 'WORKS OF THE INSTITUTE OF THEORETICAL GEOPHYSICS, VOLUME I (1946)' USSR

O. Yu. Shmidt, editor in chief

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[illegible]

[illegible] (1950)'

G. Ye. [illegible], Editor-in-Chief

[illegible], Assistant Editor.

(Note: The following are abstracts of the four Russian articles contained in the book entitled '[illegible], Volume I,' published [illegible]).

1. "[illegible] conditions,"
   [illegible], pp. 3-[illegible]

   This extensive theoretical work is concerned with the theoretical [illegible] of the distribution of air temperature with height. It is assumed that radiation equilibrium exists in the atmosphere; that is, every particle of air absorbs the same amount of radiant energy that it emits. In distinction to the previous works of [illegible], Milne, and others [illegible] the solution of this problem [illegible] equations of radiation energy transfer, this study is based on the exact transfer equation, which reduces the problem to the solution of integral equations. Completely new are the problems set up on the influence, upon temperature distribution, of the albedo of the earth's surface, horizontal surfaces of separation, and scattering of radiant energy.

2. "Turbulence in an Atmosphere Which is Nonhomogeneous With Respect to Temperature," [illegible]khov, pp 95-110

This work investigates the influence of temperature distribution nonhomogeneous with height upon the development of turbulence in the atmosphere. This influence is quantitatively taken into consideration by a correction factor in the equation of the semi-empirical Prandtl theory; that is, by a universal function of the Richardson number. The author succeeded in quantitatively evaluating the height of the layer of dynamic turbulence for various external conditions.

3. "Electro-Sounding Over an Inclined Seam," A. [illegible]. Tikhonov, pp 11[illegible]-137

The problem of calculating the field of a point source of current located on the earth's surface over an inclined seam is solved. The problem reduces to the solution of a certain integral equation by the method of successive approximations. Formulas are given for the asymptotic value of potential and also for the calculation of apparent resistance. The accuracy of the approximation formulas is evaluated.

4. "Calculation of the Field of a Point Source Located Over an Inclined Seam," I. F. Tyurkisher, pp 137-142

In this paper, the double integral of the form found in A. N. Tikhonov's work to calculate the field of a point source over an inclined seam is represented more simply by the product of ordinary integrals.

It is proven that the first integral can be expressed with the help of complete elliptic integrals; the second integration of the double integral was made by approximation.

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